

# MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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## INTRODUCTION.

The MONTHLY WEATHER REVIEW for December, 1898, is based on about 2,762 reports from stations occupied by regular and voluntary observers, classified as follows: 162 from Weather Bureau stations; numerous special river stations; 32 from post surgeons, received through the Surgeon General, United States Army; 2,385 from voluntary observers; 96 received through the Southern Pacific Railway Company; 29 from Life-Saving stations, received through the Superintendent United States Life-Saving Service; 31 from Canadian stations; 10 from Mexican stations; 7 from Jamaica, W. I. International simultaneous observations are received from a few stations and used, together with trustworthy newspaper extracts and special reports.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Mr. Curtis J. Lyons, Meteorologist to the Hawaiian Government Survey, Honolulu; Dr. Mariano Bárcena, Director of the Central Meteorological and Magnetic Observatory of Mexico; Mr. Maxwell Hall, Government Meteorologist, Kingston, Jamaica; Capt. S. I. Kim-

ball, Superintendent of the United States Life-Saving Service; and Commander J. E. Craig, Hydrographer, United States Navy.

The REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe.

Attention is called to the fact that the clocks and self-registers at regular Weather Bureau stations are all set to seventy-fifth meridian or eastern standard time, which is exactly five hours behind Greenwich time; as far as practicable, only this standard of time is used in the text of the REVIEW, since all Weather Bureau observations are required to be taken and recorded by it. The standards used by the public in the United States and Canada and by the voluntary observers are believed to generally conform to the modern international system of standard meridians, one hour apart, beginning with Greenwich. Records of miscellaneous phenomena that are reported occasionally in other standards of time by voluntary observers or newspaper correspondents are sometimes corrected to agree with the eastern standard; otherwise, the local meridian is mentioned.

## FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

But one storm of marked strength visited the Great Lakes and the Atlantic seaboard in December, 1898. This storm appeared over the west part of the Gulf of Mexico on the 2d and moved thence to the St. Lawrence Valley by the 5th, with wind velocities of 30 to 40 miles an hour along the middle and west coasts of the Gulf of Mexico on the 3d, and velocities of 40 to 60 miles an hour over the lower Lakes and along the middle Atlantic coast on the 4th. The highest wind velocity on record at the Weather Bureau office at New York city, 76 miles an hour from the east, was registered during the night of the 4th. During the 5th hard westerly gales continued along the middle Atlantic and New England coasts. Throughout its course the storm was attended by heavy precipitation, and in the lower Lake region and parts of New York and New England heavy snow, drifted by high winds, seriously interfered with traffic and telegraphic communication.

Action in distributing warnings in advance of the disturbance was taken by the Weather Bureau as follows: The morning of the 3d storm signals were ordered for the middle and west coasts of the Gulf of Mexico, and shipping interests in those sections were advised that a storm was central over Louisiana moving northeast, and were warned of high north-west winds and much colder weather. Especially dangerous

features were not, however, developed during the 3d, but as an increase in intensity almost invariably attends the northward advance of storms of this class, close watch was kept upon its movements by means of special reports, and storm signals, based upon noon reports, were ordered on the Atlantic coast from Hatteras to Eastport. In the evening storm signals were ordered for the lower Lakes and the south Atlantic coast.

The morning of the 4th, when the storm was central over Kentucky, hurricane signals were ordered along the Atlantic coast from Cape May to Eastport by the following message:

Hoist hurricane signals at once. Northeast hurricane winds with heavy snow in New York and New England.

Hurricane signals were also ordered at all ports on Lakes Ontario and Erie, and at Detroit, Mich., with the information that heavy rain would turn to snow, and observers and displaymen were directed to hold all shipping in port.

These extreme warnings called for the greatest possible activity on the part of all employees of the Weather Bureau in the sections for which the signals and warnings were issued, and notice of the approaching storm and of its exceptional severity was given a most effective distribution among the maritime, commercial, and traffic interests, and, so far as possible, shipping was held in port.